2009, Mathematics - Grade 8

Question 12: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item allows use of a calculator

The stem-and-leaf plot below shows the age of each member of a hiking club.

**Hiking Club**

**Members’ Ages**

|  |  |
| --- | --- |
| 2  **3**  **4**  **5**  **6** | 6 8 9  3 4 6 7 7 7 7  0 1 1 6 8 8  3  0 2 5 7 |

|  |
| --- |
| Key  2 - 8 represents 28 |

What is the range of ages of the hiking club members?

A. 34

B. 37

C. 40

D. 41

2008, Mathematics - Grade 8

Question 3: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.4

This item does not allow use of a calculator

Frank has 2 Massachusetts quarters and 3 “Eagle” quarters in his pocket, as pictured below.



He will select a quarter at random, look at it, and put it back. Then he will select another quarter at random.

What is the probability that Frank will select a Massachusetts quarter both times?

A. 2/25

B. 4/25

C. 1/4

D. 1/2

2008, Mathematics - Grade 8

Question 24: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item allows use of a calculator

The scores Melanie earned on her first four mathematics tests are shown in the box below.

|  |
| --- |
| 78, 82, 92, 94 |

Melanie earned a 92 on her fifth mathematics test. Which of the following measures does not change when her fifth test score is included?

A. range

B. mode

C. median

D. mean

2008, Mathematics - Grade 8

Question 30: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item allows use of a calculator

Yasmin works in a pet store. The list in the box below shows the number of pets that Yasmin sold each week for seven weeks.

|  |
| --- |
| 7, 5, 6, 10, 4, 12, 5 |

What is the mode of the number of pets that Yasmin sold each week for these seven weeks?

A. 5

B. 6

C. 7

D. 8

2008, Mathematics - Grade 8

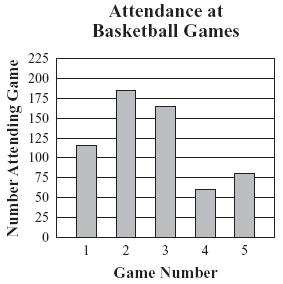
Question 33: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item allows use of a calculator

The bar graph below shows the attendance at each of five basketball games.



Which of the following is closest to the difference between the least and the greatest attendance for the five basketball games?

A. 35

B. 55

C. 70

D. 125

2008, Mathematics - Grade 8

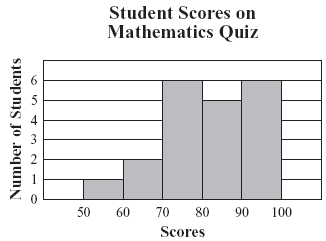
Question 35: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item allows use of a calculator

The histogram below shows the scores for all the students who took a mathematics quiz.



What percent of the students received a score of 80 or above?

A. 55%

B. 40%

C. 25%

D. 11%

2008, Mathematics - Grade 8

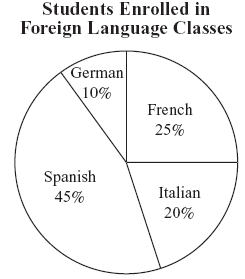
Question 38: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item allows use of a calculator

The circle graph below shows the percent of students enrolled in each of four foreign language classes being offered at a school.



\* No student is enrolled in more than one foreign language class.

\* The number of students enrolled in Italian is 36.

Based on the graph and the given data, what is the total number of students enrolled in foreign language classes?

A. 72

B. 100

C. 116

D. 180

2007, Mathematics - Grade 8

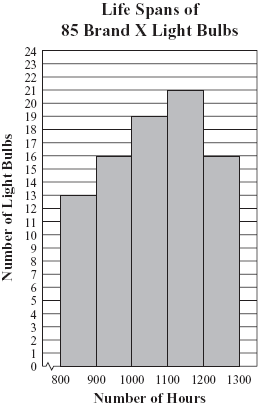
Question 13: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item does not allow use of a calculator

Abe tested 85 Brand X light bulbs to determine their life spans. The histogram below shows the results of his test.



What was the total number of Brand X light bulbs that had life spans greater than or equal to 1000 hours?

A. 72

B. 56

C. 51

D. 21

2007, Mathematics - Grade 8

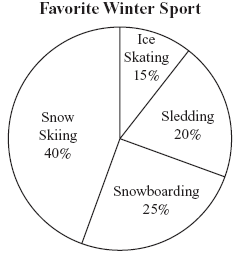
Question 30: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item allows use of a calculator

Ruben surveyed 180 students in his school to find each student’s favorite winter sport. He recorded his results in the circle graph below.



Based on Ruben’s graph, what is the total number of students whose favorite sport was either snowboarding or snow skiing?

A. 117

B. 115

C. 90

D. 65

2007, Mathematics - Grade 8

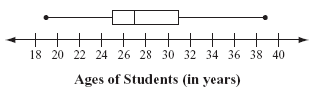
Question 33: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item allows use of a calculator

Ms. Simmons made the box-and-whisker plot below to show some statistics about the ages of the students in her class at a community college.



Which of the following best represents the median age of the students in her class?

A. 25

B. 27

C. 29

D. 31

2007, Mathematics - Grade 8

Question 35: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item allows use of a calculator

Tara wrote a set of three numbers.

\* The mean of her set is 8.

\* The range of her set is 14.

Which of the following could be Tara’s set of numbers?

A. 2, 8, 14

B. 4, 6, 18

C. 2, 6, 16

D. 6, 8, 10

2007, Mathematics - Grade 8

Question 36: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.4

This item allows use of a calculator

Franco has a bag with four letter tiles in it. All of the tiles are the same size and shape, as shown below.



One face of each tile has a letter on it, and the other faces are blank.

Franco will select a tile at random, record the letter, and put the tile back. If he does this two times, what is the probability that Franco will select a T and then a B?

A. 1/16

B. 1/12

C. 1/4

D. 1/2

2007, Mathematics - Grade 8

Question 38: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item allows use of a calculator

The chart below shows the low temperatures, in degrees Fahrenheit, outside Maya’s house for a seven-day period in December.

**Maya’s House**

**Date Temperature**

December 12 –3°F

December 13 –9°F

December 14 8°F

December 15 7°F

December 16 –4°F

December 17 5°F

December 18 8°F

What is the median of the temperatures in the chart?

A. 5°F

B. 6°F

C. 7°F

D. 8°F

2006, Mathematics - Grade 8

Question 18: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.4

This item does not allow use of a calculator

In Mr. Montgomery’s class, there are 8 boys and 12 girls. If Mr. Montgomery selects 1 student from his class at random, what is the probability that the student will be a girl?

A. 2/3

B. 3/5

C. 1/12

D. 1/20

2006, Mathematics - Grade 8

Question 30: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item allows use of a calculator

The prices of some of the comic books sold in a collectors' catalogue are listed below.

|  |
| --- |
| $5.00 $20.00 $4.50 $3.00 $3.50  $3.00 $5.50 $3.00 $6.00 $4.00 |

What is the mean price of these books?

A. $3.00

B. $4.25

C. $5.00

D. $5.75

2006, Mathematics - Grade 8

Question 37: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item allows use of a calculator

There are a total of 500 students at Lincoln Middle School. The table below shows the number of students who are members of 0, 1, 2, 3, or 4 clubs.

**Members of Student Clubs**

Number of Clubs Number of Students

(n) Who Are Members of *n* Clubs

0 300

1 110

2 60

3 20

4 10

Based on the table, what percent of the 500 students are members of 2 or more clubs?

A. 12%

B. 18%

C. 90%

D. 94%

2005, Mathematics - Grade 8

Question 11: Multiple-Choice

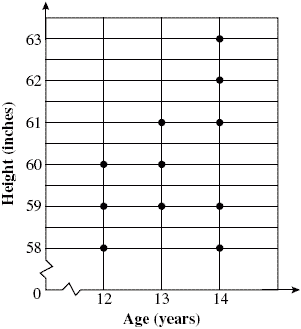
Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item does not allow use of a calculator

The scatterplot below shows the ages and heights of 11 players on the school football team. Each dot represents one player.

**Ages and Heights of Players**



What is the total number of 14-year-olds who are more than 60 inches tall?

A. 0

B. 2

C. 3

D. 5

2005, Mathematics - Grade 8

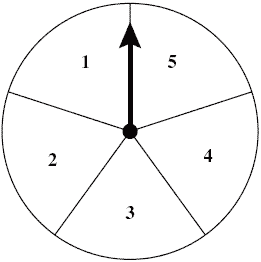
Question 16: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.4

This item does not allow use of a calculator

To win a game, Yepa must get a sum of 8 on her next two spins of the arrow on the spinner shown below. All the sections of the spinner are of equal size.



A spinner wheel with five segments, each containing one number: 5, 4, 3, 2, and 1.

What is the probability that the results of Yepa’s next two spins will have a sum of 8?

A. 0

B. 1/25

C. 3/25

D. 8/25

2005, Mathematics - Grade 8

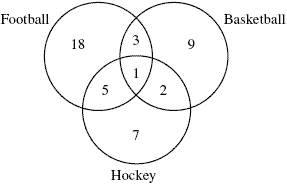
Question 18: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item does not allow use of a calculator

Coach Wilson constructed a Venn diagram that shows the number of eighth-grade athletes who play football, basketball, and hockey.



Which phrase best identifies the number 5 shown in the diagram?

A. the total number of athletes who do not play all three sports

B. the total number of athletes who play both football and hockey, but not basketball

C. the total number of athletes who play either football or hockey, but not both

D. the total number of athletes who do not play basketball

2005, Mathematics - Grade 8

Question 31: Multiple-Choice

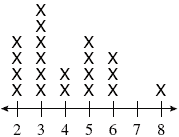
Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item allows use of a calculator

The line plot below shows the number of people in each student’s household for a class of students.

**Number of People in Student Households**



What is the mean number of people in households for this class of students?

A. 3

B. 3.5

C. 4

D. 6

2004, Mathematics - Grade 8

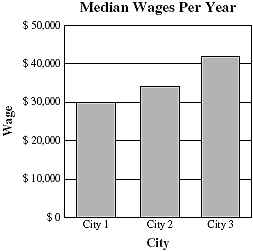
Question 17: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item does not allow use of a calculator

A comparison of the median wage for a business employee in three cities is shown below.



Which of the following is closest to the difference between the median wage in City 2 and the median wage in City 1?

A. $4,000

B. $8,000

C. $12,000

D. $64,000

2004, Mathematics - Grade 8

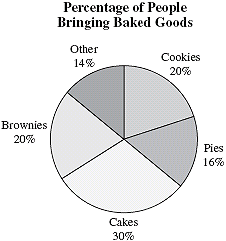
Question 24: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.2

This item allows use of a calculator

The circle graph below shows the percentages of people who brought each type of baked good to sell at a recent bake sale.



If 15 people brought cakes to sell, what is the total number of people who brought baked goods to sell at the bake sale?

A. 45

B. 50

C. 70

D. 75

2003, Mathematics - Grade 8

Question 5: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.1

This item does not allow use of a calculator

A survey is conducted to find the most popular food among eighth-grade students at a school. Which of the following sampling methods would give the most accurate results?

A. choose every fourth student in an alphabetical list of all eighth-grade students

B. choose every eighth-grade teacher and every eighth-grade parent

C. choose every fourth student in an alphabetical list of all eighth-grade girls

D. choose every eighth-grade student athlete

2003, Mathematics - Grade 8

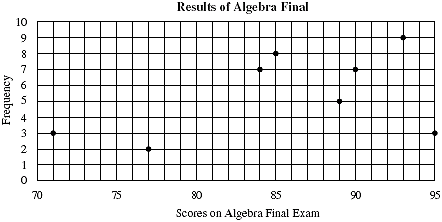
Question 6: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item does not allow use of a calculator

The graph below shows the frequency of test scores on the algebra final exam.



What is the mode of the algebra final exam scores?

A. 88

B. 89

C. 93

D. 95

2003, Mathematics - Grade 8

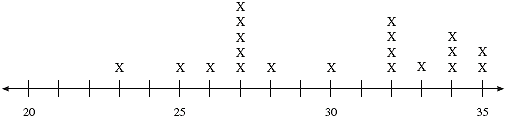
Question 15: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.3

This item does not allow use of a calculator

The line plot below represents the number of raisins that Janika’s class counted in each of 20 boxes of cereal.



What was the median number of raisins in a box?

A. 27

B. 29

C. 30

D. 31

2003, Mathematics - Grade 8

Question 32: Multiple-Choice

Reporting Category: Data Analysis, Statistics, and Probability

Standard: 8.D.4

This item allows use of a calculator

The chart below shows the number of restaurant advertisements in a city directory.

Restaurant Advertisements

**Type of Restaurant Number**

Chinese 10

Mexican 17

Italian 8

French 5

The telephone numbers of these restaurants are written on separate slips of paper and one is selected at random. What is the probability that the telephone number of an Italian restaurant is selected?

A. 0.025

B. 0.125

C. 0.2

D. 0.8